THE MALCOLM D. SHUSTER ASTRONAUTICS SYMPOSIUM

Edited by
John L. Crassidis
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$$R(\underline{\hat{n}}, \theta) = I_{3\times3} + (\sin\theta)\,[[\underline{\hat{n}}]] + (1-\cos\theta)\,[[\underline{\hat{n}}]]^2 = \exp\{[[\theta\,\underline{\hat{n}}]]\}$$

$$A^{*\,\mathrm{TRIAD}} = [\underline{\hat{s}}_1\ \underline{\hat{s}}_2\ \underline{\hat{s}}_3]\,[\underline{\hat{r}}_1\ \underline{\hat{r}}_2\ \underline{\hat{r}}_3]^T \quad \diamond \quad J(A) = \frac{1}{2}\sum_{k=1}^{N} a_k\,|\underline{\hat{W}}_k - A\,\underline{\hat{V}}_k|^2$$

$$B = \sum_{k=1}^{N} a_k\,\underline{\hat{W}}_k\,\underline{\hat{V}}_k^T \quad \diamond \quad J(A) = \lambda_o - \mathrm{tr}\,[B^T A] \quad \diamond \quad K\,q^* = \lambda_{\max}\,q^*$$

$$a_k = \lambda_o\,\sigma_{\mathrm{tot}}^2/\sigma_k^2 \quad \diamond \quad \underline{\hat{W}}_k \sim \mathcal{N}\left(A^{\mathrm{true}}\,\underline{\hat{V}}_k,\ \sigma_k^2\,(I_{3\times3} - \underline{\hat{W}}_k^{\mathrm{true}}\,\underline{\hat{W}}_k^{\mathrm{true}\,T})\right)$$

$$\lambda_{\max} = \lambda_o\left(1 - \tfrac{1}{2}\,\sigma_{\mathrm{tot}}^2\,\chi^2(2N-3)\right) \quad \diamond \quad B = U\,S\,V^T \quad \diamond \quad A = U V^T$$

$$\left(P_{\theta\theta}^{-1}\right)^{\mathrm{QUEST}} = \sum_{k=1}^{N} \frac{1}{\sigma_k^2}\left(I_{3\times3} - \underline{\hat{W}}_k^{\mathrm{true}}\,\underline{\hat{W}}_k^{\mathrm{true}\,T}\right) \quad \diamond \quad q_{k|k} = \delta q(\underline{\epsilon}_{k|k}) \circ q_{k|k-1}$$

$$\underline{\epsilon}_{k|k} = P_{k|k}\,[[\underline{\hat{W}}_{k|k-1}]]\,\underline{\hat{W}}_k/\sigma_k^2 \quad \diamond \quad p_{\underline{\xi}}(\underline{\xi}') = \frac{1}{\pi^2}\left|\frac{\partial q(|q|, \underline{\xi}')}{\partial(|q|, \underline{\xi}')}\right|_{|q|=1}$$

$$B = \left[\tfrac{1}{2}\,(\mathrm{tr}\,P_{\theta\theta}^{-1})\,I_{3\times3} - P_{\theta\theta}^{-1}\right]A^* \quad \diamond \quad K = \lambda_{\max}\,I_{4\times4} - 2\,\Xi(q^*)\,P_{\theta\theta}^{-1}\,\Xi^T(q^*)$$

$$z_{ij,k} \equiv (\underline{\hat{W}}^o_{i,k}\cdot\underline{\hat{W}}^o_{j,k}) - \underline{\hat{V}}_{i,k}\cdot\underline{\hat{V}}_{j,k} = (\underline{\hat{W}}^o_{i,k}\times\underline{\hat{W}}^o_{j,k})\cdot(\underline{\theta}_i - \underline{\theta}_j) + \Delta z_{ij,k}$$

$$B_{k|k-1} = \beta_k\,\Phi_k\,B_{k-1|k-1} \quad \diamond \quad J(\underline{b}) = \sum_{k=1}^{N} |z_k - 2\underline{B}_k\cdot\underline{b} - \mu_k|^2/(2\,\sigma_k^2)$$

$$B_{k|k} = B_{k|k-1} + \underline{\hat{W}}_k\,\underline{\hat{V}}_k^T/\sigma_k^2 \quad \diamond \quad \bar{J}(\underline{b}) = |z - 2\underline{B}\cdot\underline{b} + |\underline{b}|^2 - \mu|^2/(2\sigma^2)$$

$$R(\underline{\hat{n}}_1, \underline{\hat{n}}_2, \underline{\hat{n}}_3 : \varphi_1, \varphi_2, \varphi_3) = C^T\ R(\underline{\hat{1}}, \lambda)\ R_{313}(\varphi, \vartheta-\lambda, \psi)\ C$$

$$B = \sum_{k=1}^{3} \underline{\hat{W}}_k^{eq}\,\underline{\hat{V}}_k^{eq\,T}/(\sigma_k^2)^{eq} \quad \diamond \quad {}^{\epsilon}\left[\frac{d}{dt}\right] = I_{3\times3}\,\frac{d}{dt} - [[{}^{\epsilon}\underline{\omega}^{\epsilon}]]$$

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